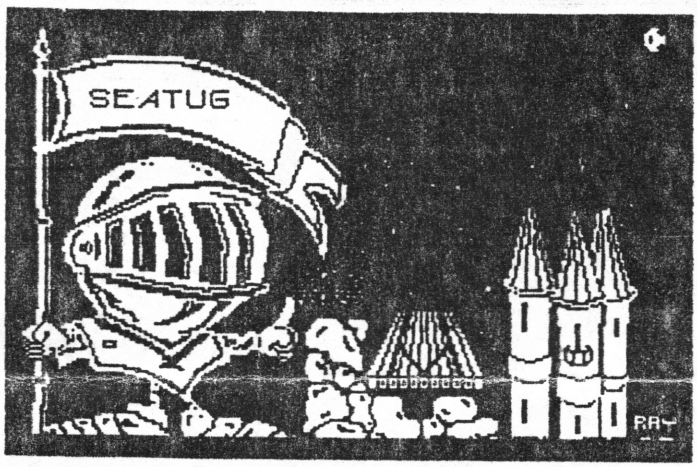
THE NEWSLETTER FOR THE SEATTLE AREA TIMEX/SINCLAIR USERS

SWYM

GROUP USA

MAY 1990

VOLUME 5
NUMBER 5



MAY MEETING:
MAY 5th, 1990
THURSDAY 7:30pm

8517 35th Ave. NE. Seattle
UNIVERSITY FEDERAL SAVINGS BANK

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SEATUG supports ZX/80, T/S 1000, T/S 1500, T/S 2068 and QL computers.

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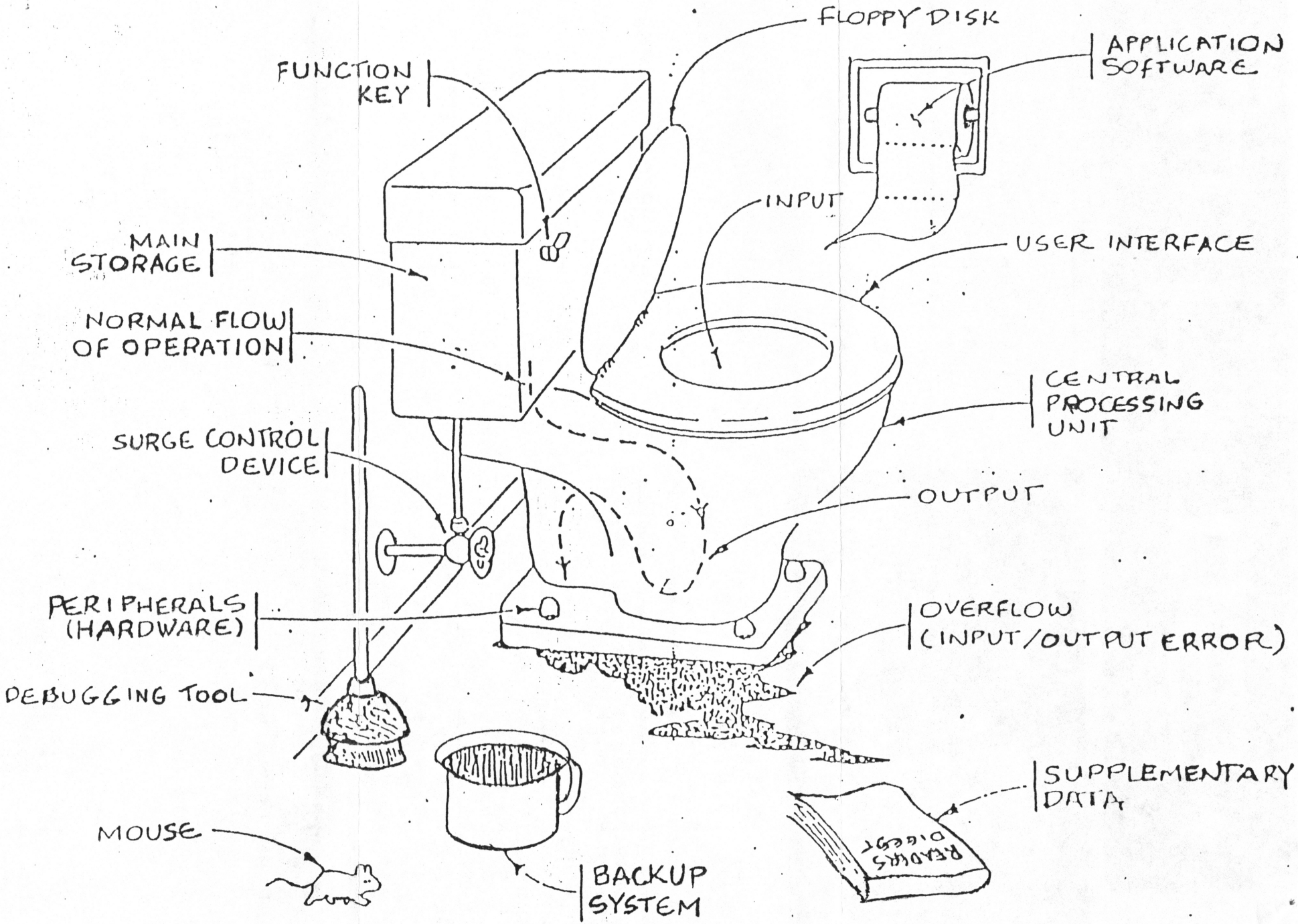
NOTICE: Files for SWYM may now be uploaded to the PhotoSynthesis BBS. TASWORD, MSCRIPT, and Pixel Print files are supported. Also WordPerfect 5.0, 5.1, and straight ASCII files are welcome.

President: Derryck Turner
V.P. : Gerry Desmaris
Secretary: Malcolm Post
Treasurer: Dave Battershill
Librarian: Dale Fritz
Editors : Robert Cazares
: Chuck Kereluck

PhotoSynthesis BBS
(206)789-3275
Midnight-7:00am
300/1200/2400
8,1,N

Understanding The Technology



OUTPUT FROM AN OFFICE FAX .....

TECHNICAL TALK-NOTES-DIAGRAMS-DATA-SUGGESTIONS-INFORMATION...

Random Bits

TECHNICAL TALK-NOTES-DIAGRAMS-DATA-SUGGESTIONS-INFORMATION...

by Chuck Kereluck

HOW'S YOUR CLUB?

No doubt about it: The Timex/Sinclair users groups, SNUG included, are the only outlet for information and the remaining catalyst for cohesion among the users, that we have. Without them, we'd all drift off, randomly, into the Twilight Zone.

How is yours, doing? A recent update of the SWYM local mailing list illuminated some stark realities. To state that membership is down would be gross understatement.

What's going on, here? Why the attrition? How many other clubs are facing similar situations? If so, how come? Let's look at a few ideas I've heard about clubs. These are supposed to be club building blocks.

1.)Provide a good reason to attend meetings. Sure, you may have joined a local club just to keep abreast of what's happening via the cub's newsletter. There's nothing wrong with that.What would you like that would pull you in, once a month, for a meeting? Interesting demos? Featured speakers? A chance to help plan a major club function? Having a major club function? Free coffee and doughnuts?? Dancing girls???

2.)Reach out to each and every one of the members, even if they don't attend too many meetings. Make them feel wanted. Is there an election coming up? How about club mailings to everyone to help with nominations? Personal characteristics,at least in part, are already on file in your club's computer. These could be retreived, added to and distributed to all, for anyone who was "running." Just like real elections. Is the club considering a major equipment purchase? Something that Mr. Stayhome would enjoy using, on a part-time basis? Mail a ballot or questionaire to ask him! Make him feel important. So important that he may just attend the next meeting so he can espouse his much-needed opinions, directly. What are some other benefits to joining your club? Are all members aware of all they can take advantage of? Are you sure? Better get those mailings out to remind them!

3.)Have a strong, regularly published newsletter. Even if it's not real strong,at least make it regular. It doesn't take anyone long to figure out what's happening if publication is infrequent and sporadic. This could be one of the ties that bind. And get in on the creation of it, too. There's a lot of fun to be had while flirting with fame. But don't worry. The national Timex/Sinclair community is relatively small, so I don't think Hollywood is going to pick us up or anything. But don't think that you have to sit around and write articles, all day. There's much other work...uh, fun to be had doing promotions, advertising, page arrangements, etc.

4.)Advertise. Yep, it doesn't hurt to advertise in someone else's newsletter. Some will charge for this,others won't. Don't overlook the local want ads, either. If you have a bunch of extra money just sitting around in the treasury that no one knows what to do with, you might consider contacting the local newspapers. Who knows? This just might result in a few phone calls to the club president, with requests to join or a few letters from out-of-town readers who want to be remote members.

5.)Most importantly, make the club FUN. Don't be a consistently dry, technical group. Expand on the human element: parties, informal get-togethers, etc. However, if your group tends to party all the time, you might want to attract some potential members with some technical classes. What to give a class in? Surely, someone has gotten to be an expert on some small aspect on computing? Show off your knowledge! Be famous! Here's another idea, for fun: Form a small committee (it's much easier when someone else is there to help you) to come up with some clever puzzles,

cont'd next pg.

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occasionally. Make them so clever and complex that they will need their computers to solve it! There could even be a small prize involved for whoever comes up with the solution, first.

Well, that should give anyone enough to chew on, for a while. After these general guidelines, however, there is one problem area that is unique to our T/S groups. Even if all those other things, and more, or done, what can one do to generate interest in a computer family that, to put it delicately, is no longer state of the art? Especially during a time when technological feats are becoming truly amazing and cheap?? Where does our precious Timex/Sinclair computers fit in, among all this? Can we keep up? Of couse not, silly! Just what kind of resloution can you expect from an 8-bit machine vs. a 32-bit one? However, let's not throw in the towel, just yet. While we cannot realistically compete, we can certainly enhance! Let's take the boards out some of our T/S stuff and turn them into IBM peripherals! Here's an example: At the data processing center, where I'm otherwise employed, there's a device that looks all the world like a tiny computer (It IS, but that's beside the point!). It has a small keyboard with command keywords printed across the keytops, 32K of RAM, a cassette tape drive for mass storage and a 32-column monochrome crt display. Does this sound like the TS1000 or 1500?? Actually, it's really a protocol analyzer built by Hewlett-Packard for analyzing a data-carrying phone line! And it's one of the handiest little gadgets, we have! And how about building a snazzy printer for LANs, using a 1000 or 2068?

The point, of course, is to throw out all the political BS that says, "My computer is better than yours." or "You are obsolete." and think about what would be useful and what would be practical to develop with what we have. Once you have yourself hooked on an idea, see how many other people you can infect with your enthusiasm. Some will think you're nuts; others will join you. If you have no takers, maybe your approach is off. Get psychological. Sell them on your idea. Then, take those that finally join you and see about saving your club.

NEW USE FOR FAX

Lately, there's been some interesting output from the office FAX machine, where I work. You've seen those typical office type visual gags that have the appearance of being photo-copied a miilon times, and you're seeing the millionth copy-of-a-copy.

Well, along with the usual FAX junk mail, an occassional office gag gets received, originating from parts unknown. Right there on the thermal paper! This month we're including one, for your enjoyment.

Have any of these come across the FAX, where you work? If so, we'd like to see 'em! We'll consider any and all for republication in SWYM, although I suspect there will ve some that will definitely be turned down! So, if you see any of these choice morcels slip into your office, make another copy and mail to: FAXJOKES, 9013 32nd Ave. NE, Seattle, WA 98115.

What?? Not Timex or Sinclair related? Ok, you got me there, but it DOES have a certain computerized slant to it. Alright then, should you come across any interestings SCREEN$ while BBSing, download and send those in, also.

We're not proud. We'll take anything.

SPECIAL THANKS

We want to take this opportunity to offer a heart-felt, "Thank You!" to all those persons who have contributed articles, this month: Namely, Dale Fritz, Derryck Turner, Malcolm Post, Mike Stone, Sinc-Link and, of course, Robert Cazares, who always manages to do an excellent job on the cover.

Geeze, it's not even August, yet!

MORE RANDOM BITS...

It's reported that BYTE-BACK, the modem, interface and RAM company for T/S computers, is still in business...

Detailed instructions are in the works for taking panoramic photos from an airborne kite, using the TS1000 as a flying controller...

A brand-new, electronic bulletin board, with T/S files, is secretly being developed by a member of the Seattle Area Timex Users Group...

Just received is the 2nd issue of SNUG ROUND-UP. Will report and comment on a very interesting proposal, next month...

Until then...

QL CORNER By:Robert Cazares

Welcome to the first QL CORNER in our very own SWYM newsletter. A major problem that has plagued many of us computer users from time to time has prevented me from writing an honest to goodness QL page. A new 24 pin printer that is truly Epson and IBM compatable was an almost instant cure for my printer blues. Quill, the word processor bundled with the 3 other PSION software programs seemed to work with the old printer with no problems. FRONT PAGE, which is the program I am writing this column with, did not work with the old printer . FRONT PAGE is an interesting "Desktop" publishing program. As a modern desktop publishing such as WordPerfect 5.1(not really a true desktopper), FRONT PAGE is no comparison, but it is fun to finally get to play with this program AND print it out.

In my opinion the strong point of FRONT PAGE is the user defined graphics. There is space for 3 sets of 32 UDG's although only one is available with the stock program. You can inverse UDG's and characters for more flexibility. According to the documentation loading and saving screens from other art programs are possible including digitized images. I don't think it would be easy unless the file was digitized with the QL to start with.

The manual states FRONT PAGE was written with five main objectives in mind:

1. ...run on an unexpanded, unmodified QL.
2. ...be easy to use.
3. ..do as much as you might expect.
4. ..be difficult to lose several hours of work(ha ha)
5. ..be cheap(ED:Which it was!)

FRONT PAGE does run on an unexpanded QL, is fairly easy to use, does as much as I would expect of any Sinclair machine, iis difficult to lose work(but if your microdrive cartridge fails, well you know)and FRONT PAGE only cost me $12.00!

TIMELINEZ, the newsletter of AMERICAN MICRO SYSTEMS uses FRONT PAGE for almost the entire newsletter. I always enjoy reading their articles. One of the more interesting set of articles has been from the WIDJUP Co., at 1120 Merrifield S.E., Grand Rapids, MI, 49507. ATTN: William J. Pedersen.

Mr. Pedersen has three articles on expanded bank switching using a standard inexpensive 8 slot back-plane for a PC and an adapter. The back-plane listed is an Everex Systems, Inc. EV-1085. The adapter is available from the WIDJUP Co., and plugs into the 2068 rear connector and has the usual feed through. The diagram for bank switching and and a memory bank board is copyright 1986. It seems odd that this Timex/Sinclair enthusiast would have missed rumors of being able to expand my 2068 to access over 16 megabytes of memory on an unmodified 2068. The WIDJUP Co. claims that it would cost about $90.00 to implement a back-plane in a minimum configuration. Also stated is that the bus driver card is the only item not yet detailed(TIMELINEZ March 1990), but for the minimum system, all design data has already been given.

WIDJUP has just put out a new CAD program called CAD#3.B1 which works with LX-800 and Epson compatable printers. It is reported that beta testing has been favorable and will be available as share-ware(TIMELINEZ February 1990).

The March issue touts two figures for the primary adapter mentioned above. They were drawn using CAD#3.B1 using PUBLIC DOMAIN data files donated in the interests of T/S 2068 users everywhere.

PhotoSynthesis BBS, Seattle, WA.
Running DragCit v3.11.00d
(206)789-3275*MIB-7:00am PDT
300/1200/2400*8,1,N

Puget Sound Gateway FidoNet
SINCLAIR ECHO SUPPORT!
(206)848-9232 300/1200/2400 8,1,N

TIME THAT SORT!

by Dale Fritz

I recently wanted to time two versions of a sort program and found that it can be done quite easily on both the 2068 and the 1000.

The method is similar to a stopwatch. Read a Time (T0) at the beginning and a Time (T1) at the end of a program portion. The elapsed time is:

TIME = (T1-T0)/60 seconds.

FOR THE 2068:

```
T = 65536*PEEK 23674+256*PEEK
    23673+PEEK 23672
```

Try this:

```
10 REM ..2068 TIMER CHECK..
30 LET t0=65536*PEEK 23674+256
   *PEEK 23673+PEEK 23672
40 FOR i=1 TO 500
50 NEXT i
60 LET t1=65536*PEEK 23674+256
   *PEEK 23673+PEEK 23672
70 LET time=(t1-t0)/60
90 PRINT "time=";time;" seconds"
100 GO TO 30
```

FOR THE 1000:

```
T = PEEK 16436+256*PEEK 16437
```

There are some differences with the 1000:

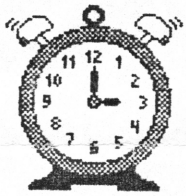
1. The timer works only in SLOW
2. The timer counts backwards, so the time formula becomes:

   TIME = (T0-T1)/60

3. The time cycle is about 9 minutes, so it's possible to get a "negative" time, if your sample is over the break period. The soution is to add 32768/60 if (T0-T1)/60 is negative.

Try this:

```
10 REM ...1000 TIMER CHECK..
15 SLOW
20 LET CYCLE=32768/60
30 LET T0=PEEK 16436+256*PEEK
   16437
40 FOR I=1 TO 500
50 NEXT I
60 LET T1=PEEK 16436+256*PEEK
   16437
70 LET TIME=(T0-T1)/60
80 IF TIME>=0 THEN GOTO 100
90 LET TIME=TIME+CYCLE
100 PRINT "TIME=";TIME;" SECONDS
    "
110 GOTO 30
```



MINUTES WITH SEATUG

by Malcolm Post, Secretary

APRIL 5, 1990

The meeting was called to order at 8:02 P.M. by Treasurer Dave Battershill. President Derryck Turner was still on the absent list. There were ten people present. Mike Stone, who was with us last month, joined our group, officially. Welcome aboard!

We had a new visitor named Robin Ray who attended to sell his accumulation of Timex 1000 computers and accessories and books. He tells us that he now has much more powerful computers and never uses the Timex 1000. We encouraged him to join us and put an ad in SWYM, offering those items no longer wanted.

The Treasurer, Dave Battershill, reported that as of March 31, the treasury contained $189.90.

There being no further business, the official portion was adjourned at 8:15.

Dale Fritz told us of a program he is developing for timing activities in either the Timex 1000 or the TS2068. He will present the details next month.

The remainder of the evening was filled with discussions on various facets of computing. The subjects ranged from presentations at the several computer shows recently held in the Puget Sound Area to digital music and compatibility problems between a number of various makes and models.

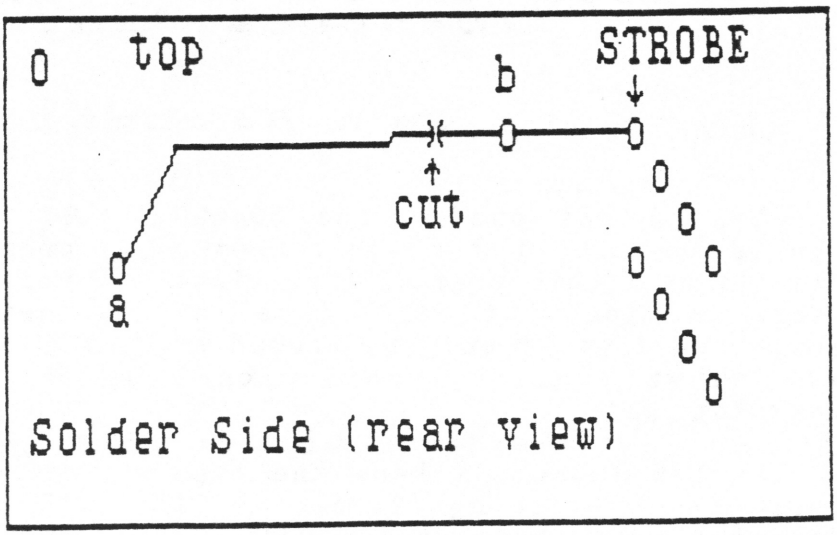
2068 FIX
STAR NX-1000/AERCO CENTRONICS I/F FIX

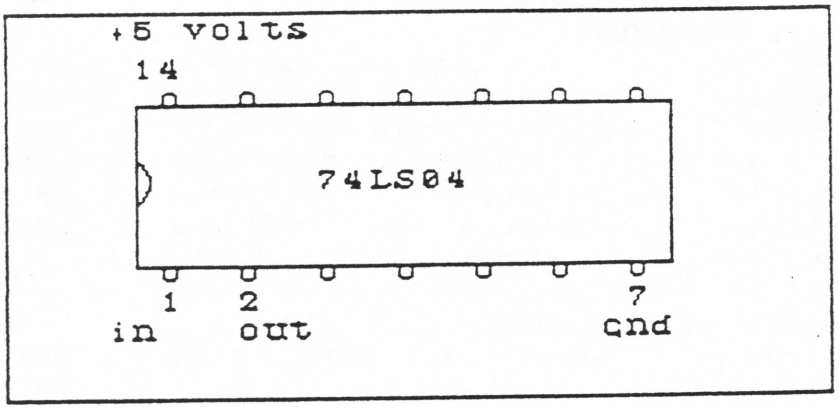
by Richard Hurd

I purchased a new Star NX-1000 Multi-Font printer about a month ago only to find that it would not work with the AERCO Centronics printer interface and the 2068.

I started writing requests for help to everyone I could think of and today I received word back from John Oliger with a suggestion for a fix. Invert the STROBE line. It worked!

First I cut the trace on the AERCO board. I had a 74LS04 IC in the spares box and soldered wire-wrap wire to pins 1, 2, 7, and 14 then to the connections shown. Pin 1 of the 74LS04 to point a of the AERCO I/f and pin 2 goes to point b of the AERCO I/f. Just track down a ground pad and a plus 5 volt pad for power. I used a small piece of double sided sticky tape to hold the IC in place.





REPRINTED FROM VOL 8 No 1 JAN-FEB '90 SINC-LINK

AND NOW FOR SOMETHING COMPLETELY DIFFERENT.....

How would you like to wear your favorite TS2068 designed rtwork? With a simple iron-on heat transfer process, it is now ossible to permanently affix TS2068 generated art onto cloth in lack or in FULL COLOR! The heat transfer process actually mpregnates cloth with a non-bleeding and fully washable image.

Using the "COLOR COPY" software I developed for OKIMATE 10 & 2 printers, the iron-on transfer is made by printing, with a lack or color thermal transfer ribbon, a full 24-line screen ump onto clear acetate transparency sheeting such as that used ith overhead projectors. The size of the screen dump printout s determined by which OKIMATE printer and Plug 'n Print artridge is used. There are three possible printer/cartridge ombinations that may be used with a TS2068 & "COLOR COPY" oftware:

1) OKIMATE 20 printer, IBM parallel Plug 'n Print cartridge, and AERCO (or compatable) parallel printer I/F. Two dump sizes: 6.5" x 5.4" and 3.25" x 2.5".

2) OKIMATE 20 printer, Commodore 64/128 Plug 'n Print cartridge, and Commodore serial port emulator I/F. (The Commodore serial port emulator I/F is available from me.) Two dump sizes: 3.25" x 2.5" and 1.6" x 1.25".

3) OKIMATE 10 printer, Commodore Plug 'n Print cartridge, and Commodore serial port emulator I/F. One dump size: 4.25" x 2.5".

Creating the artwork is something that can be done using any f a number of drawing programs available to the TS2068 or SPEC mulated TS2068. RLE pictures converted to SCREEN$, digitized ideo pictures, and header SCREEN$ from game software can also e used. However you do it, anything that can be saved to tape s a SCREEN$ will work. Note: extremely fine details will not ransfer well to cloth - especially cloth with a heavy weave. ake any lettering as bold as possible and use lines at least wo pixels wide in drawings. The iron-on artwork also needs to e a mirror-image of the original. Most drawing programs have a flip screen" option - be sure to use it just before saving your inal screen.

Once you have printed your "reversed" artwork onto a transparency sheet, the next step is to iron it onto the cloth (t-shirt, handkerchief, jacket, etc.) that you've chosen. A smooth, hard, heat-resistant work surface is required. The soft surface of most ironing boards is not suitable as a work surface. I use the metal top of a washing machine. Lay the cloth down with the surface area you wish to print to facing up, making sure there are no wrinkles or folds in the area to be printed. Position the transparency copy face down on the chosen area of the cloth. Place a single sheet of white paper over the artwork - this will be the surface you iron and it's purpose is to keep the iron from directly contacting and melting the transparency sheet. Next, using an iron on a dry medium-heat setting, carefully and slowly iron the paper over the entire artwork area while firmly pressing down. Keep the iron moving s as not to scorch the paper or melt the transparency. Be careful that the transparency sheet does not shift around while ironing or the transfered image will be smeared. Each transparency copy can be used for only a single ironing. Use care and follow thes directions to insure a successful image transfer.

I can provide a ready-to-iron transparency copy in black or color, in any of the previously listed sizes, from your TS2068 artwork. A mirror image of the artwork can be made if you lack the software to do it yourself. Send your artwork saved to tape as a SCREEN$, the desired size(s) of the transparency copy(s), and $5 per copy to: John McMichael, 1710 Palmer Dr., Laramie, WY, 82070. Your tape and transparency(s) will be returned post-paid. If interested in the I/F and software I have to sell for using OKIMATE 10 & 20 printers with TS2068 computers, pleas send a LSASE for info./order form to the above address.

1990 University of Washington Computer Fair Review

By: Michael Stone

Yes, I was one of the 80,000 people to attend the UW Computer Fair. I went this year as I did last year to look at the type of computer, I would only be around at a show; the professional workstation.

The few who don't know the type that I am talking about, I'll describe the base unit. It is usually an intelligent terminal; with a Motorola 68000cpu running at 8-10 mhz (with 4-8 meg ram), maybe a graphics co-processor (now mostly a TI34010) running at 8-10 mhz (with 2-4 meg ram), a color monitor screen mapped to 1K square (1024x1024 pixels non-interlaced), and a keyboard with many function keys, cursor keys, numeric keypad, and mouse. On rare occasion, these units have a 40 to 60 meg. hard drive installed.

You can't really call them computers because the operating system and program software are in a 'super' computer or a mainframe multiple unit, and the workstation unit is connected to it by a network system.

All of the major companies were there, the notable exceptions were Alliant and Larchmont. [Alliant was there with a video and large screen TV, no working computer. Last year they had two.] Larchmont as a small manufacturer, was being forced out by the supplier of the SPARC cpu; Sun. Apollo was there as part of the DEC Xwindows and OSF/MotiF software demonstration. (They did have a small booth.)

DEC (Digital Equipment Corp.) had an open display for the Xwindows version they were demonstrating on their 2100 color workstation and the VT1000 (dumb) terminal; all being driven by a DEC PDP series mainframe computer.

The fascination for me is that these computers are working in the future that small computers will one day do. There is talk of multiple processors in personal computers; this has been happening in workstations and super computers for years. The famous Cray MY-P gets its speed from having 100 liquid cooled CPUs working together in parallel besides being wired to over 100 meg of 20ns static ram.

The driving force is the software being used by all variations of the workstation hardware. This is the promise of Xwindows and OSF/MotiF (called X /Open). They are more than an Object Oriented Programming System (OOPS) modules on versions of Unix. The use X /Open means a standard for large computers that remains in the public domain. Yes, the code must be made available to all. The individual hardware implementation is owned by the hardware companies, but the interface to the operator and other systems is the PD standard.

This has created a growth in the large (university controlled) computer industry that had remained dormant and constrained for years. The IBM PC standard for personal computers is today's equivalent of mainframes of ten years ago.

Even OS/2, the operating system for the next generation of Intel/ IBM type computers, is X /Open aware.

How it works; if you write a program that uses various modules available online to the programmer, the program can be used on any workstation as a separate running program in its own window. This should not be confused with the basic KERNEL of the Unix operating system. Anything that supports the kernel becomes a task of the operating system, like X /Open itself.

Another example; VAX/VMS, the operating system for the DEC PDP systems can operate as a stand alone system, at the same time it is running as a task in Unix. Concurrently, it could be passing data back and forth through two X /Open windows (one on each system) and on the network buss at the same time.

I personally liked the demo; of compiling an object for the PDP, in one window; running the code in another; sending a graphic image to the terminal, and the Sun personal workstation 386ii; the Sun running a variation of Autocad, and making an image for an animated picture; while maintaining the MS-Dos 'compatibility box' running Lotus 1-2-3. Seeing a computer doing things quick enough to emulate the type of working of the human mind; and provides those capable of using them, a way of making those abilities easier for the average computer user to have in a few years. Again the most important thing will not be the slavish following of a hardware standard, but an open software protocol.

To compare an IBM 286 clone working at 12mhz w/ 1 wait, and co-processor working at 0.9 Mflops (millions of floating point operations per second) to a Sun 386ii workstation (13 Mflops); or the Alliant FX4 'workstation' (280 Mflops) or their new super computer the FX/2800 (1.1 Gflops {billion}); is like comparing the DEC 2100 station terminal working at 2.7 Mflops to a Cray YMPS-2 at 4.7 Gflops.

The lowest priced personal workstation, the darling of the show last year, the NeXT Computer was there with many available for hands on demonstrations. [I made my own playback of video images, music, and voices from the library available on optical disk.]

I had the greatest fun with the lowest priced computer capable of emulating a workstation, the Amiga. I made up my mind at this show that before the year is over, I am going to have a computer with a true multiple color graphic image (4096 colors in 640x400 int.); and a true modular operating system capable of multitasking for a price of under $1300.

One can learn about KERNEL type systems from beginnings as the Tandy Color Computer running OS-9, NZcom in CP/M, Unix on anything from Atari to Zenith, and VMS emulators on most Motorola based 68000 type computers. I had fun at the show looking at the stuff I only get a chance to touch once a year. Sometimes, I dream that I started earlier and had the ability to remain in college and work with the finest computer equipment being made; then I wake up and play with a module in NZcom on a CP/M system. No graphics, no multiple processors; no comparison, but fun anyway.

LAS VEGAS ODDS EVENER

by Derryck Turner

How many times should you shuffle a pack of cards to effectively randomize the distribution?

An article was recently published claiming it takes seven shuffles to mix a pack of cards. After studying the problem with the aid of my trusty 2068,I concluded it takes only six!

Referring to the aforementioned article, it stated that the average player employs only three or four shuffles, maximum. This seemed to be an interesting finding. However, this was a typical newapaper article, which gave no details of the work and, in any case, the mathematics were more than I was prepared to tackle from scratch. When visiting Vancouver B.C. a few weeks ago, I read another article which gave a few more details of the work, including a plot, purporting to show the maximum movement of the top card in relation to the number of shuffles. I could not understand the plot (I still can't--I think it's wrong!) but it made me start thinking and gave me clue as to how to solve the problem.

My analysis follows:

First,let's consider the shuffling process: When a pack of cards is shuffled in a conventional manner, the 52 card pack is split into two packs of 26 each. The two 26 card packs are then "riffled" together, so that each card from one pack goes above or below the corresponding card in the other. This operation, I call a RIFFLE, while the total number of RIFFLES employed before dealing,I call a SHUFFLE. This process is somewhat idealized,as in normal circumstances, some cards will stick together, some blocks of cards will not be riffled but inserted in the other pack in a random manner and various other irregularities will occur. However, these irregualrities will tend to increase the random nature of the shuffle, so that the "idealized" shuffle offers a conservative approach.

What happens to the top card in the course of several riffles? Refer to the illustration in Figure 1. After the first riffle, it will be immediately above or below the top card from the other pack; i.e., it will be in the top(1) or second from the top (2) position. The lowest position it can be in is (2). After the next riffle, the lowest position possible will be (4), then (8), then (16), etc. After n riffles, its lowest possible position will be 2'n.

CARD SHUFFLING

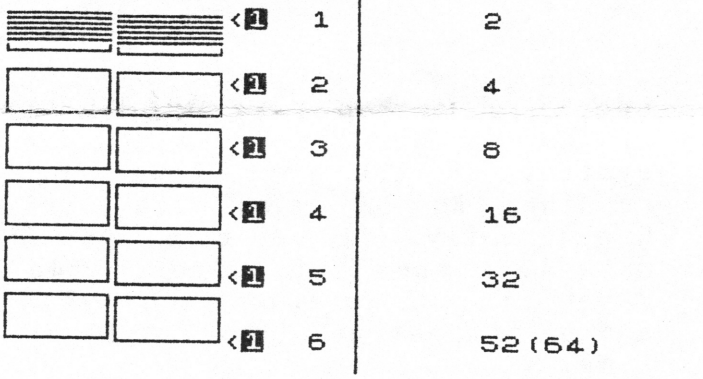


Figure 1

After one riffle, the odds are 1 in 2 it will be in any position between (1) and (2). After the second riffle, the odds are 1 in 4 it will be in any position between (1) and (4). After the third riffle, the odds will be 1 in 8 between positions (1) and (8), etc. This process is shown in Figure 2 for riffles 1 to 5. After riffle 5, the fun starts!

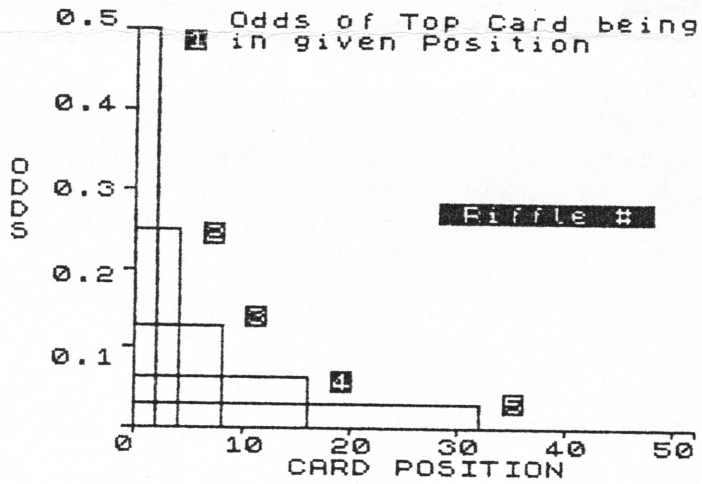


Figure 2

CONCLUSION...
NEXT MONTH!

Other News and Noteworthy Items

SINCUS NEWS, the newsletter of the Sinclair Users Society in Johnson City, New York will cease publishing their after the July/August issue. They passed a resolution to go with MS-DOS machines. Ah, the miracles of modern technology.

Jack Dohaney has a new address . He can be contacted at 435 Woodward Way, Athens, GA., 30606 Jack is now selling Zebra disk systems. The way I heard the story is that Jack bought out Zebra's stock of disk equipment.

SNUG TAKES OVER UPDATE MAGAZINE!

At least that is what the rumor that is running around the newsletters. Even Bill himself stated this in the last UPDATE I recieved.

continued >>>

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FDD EXPRESS ALSO FOLDS!!!!!!

Their dropping like flies. Ron Havlen, publisher of the famed FDD EXPRESS newsletter sent his last issue out this spring. Not only that he sold all his 2068/FDD equipment. For me the FDD EXPRESS was a publication a ZEBRA disk user could not live without. With all the wealth of information contained in those pages it seems I could not have reached the level of usage with the FDD system without the FDD EXPRESS. Thanks Ron for keeping is FDD users using and good luck in your further adventures of computing. Rumor has it that an FDD user (not this one)is contemplating continuing the FDD EXPRESS. You know who you are and I hope you decide to continue so the rest of us FDD users can continue to prosper!

-RC-

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SWYM

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